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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/930,856	08/16/2001	Chien-Wei Chen	147268.00301	2100

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EXAMINER
DEO, DUY VU NGUYEN

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)
09/930,856	CHEN ET AL.
Examiner	**Art Unit**
DuyVu n Deo	1765

Office Action Summary

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4)☐ Interview Summary (PTO-413) Paper No(s). _____
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 3, 5-11, 13, 15-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,492,214. Although the conflicting claims are not identical, they are not patentably distinct from each other because they describe a method that forms insulating layer in between gate stacks.

Referring to claims 1 (or claim 17), 8 (or claims18), 9 (or claim 19), the claims 1-12 of pat. '214 doesn't describe the step of totally remove the dielectric layer on the cap and simultaneously forming spacing dielectric layer. However, as described by claims 1 and 12 of pat. '214, the first etching step would also remove the dielectric layer at faster rate than the planar layer and the cap layer is formed under the dielectric layer and would be removed; therefore, the dielectric layer would be obviously to be removed faster than the cap layer such as a claimed ratio of larger than 1 (from 1-10) in order to form a protrusive surface and it would be obvious to totally remove the dielectric layer so that the cap layer can be exposed for its etching.

The protrusive surface of the dielectric layer after etching the cap layer would also includes the claimed shape of round top and slant sides and therefore, would also prevent a thin film from stress concentration.

Referring to the limitation that remaining the spacing dielectric layer to form electrical insulating layer, this is obvious since the whole method is to form insulating layer between gates.

Referring to claims 11, 10, the step of removing the cap wherein the etching rate of the dielectric layer is less than that of the mask layer would be obvious in order to provide a protrusion surface of the dielectric layer.

Referring to claims 3, 13, the TEOS dielectric layer would read on claimed silicon-oxide dielectric layer.

Referring to claim 16, pat. '214 (claims 11, 12) describe the etching ratio of the planer layer and dielectric layer is less than 1. This would read on claimed etching ratio between dielectric layer to planar layer is 1-10.

3. Claims 4 and 14 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,492,214 in view of Huang et al.

Referring to claims 4 and 14, depositing the dielectric layer using HDP-CVD is known to one skilled in the art as shown here by Huang and it would be obvious because this method would filling gap without formation of voids and without the need to apply a thermal cycle to remove voids (ab.; col. 1, line 54-59).

4. Claims 2, 12 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 6,492,214 in view of admitted prior art.

Referring to claims 2 and 12, conductive layer comprising polysilicon for forming the flash memory is well known one skilled in the art as shown in page 1 of the specification. At the time of the invention, using the polysilicon would be well known and obvious in order to flash memory with a reasonable expectation of success.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if the ratio can be 0.

Claim Objections

7. Claims 7, 9, 19 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 7 has a etching ratio between the dielectric layer and the planar layer from 1, which would indicate same etching rate, while claim 6 describes the etching rate of dielectric

layer is faster than the planar layer, which would indicates an etching ratio of larger than 1 (etching rate of planar layer is less than that of dielectric layer).

Claims 9 and 19 have an etching ratio between dielectric layer and the cap layer from 1, which indicate same etching rate, while claims 8 and 18 describes the etching rate of dielectric layer is larger than the cap layer.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD
May 13, 2003